

ATTACHMENT 2. CONDITIONS OF APPROVAL, MITIGATION MEASURES, AND BLM ENVIRONMENTAL CONSTRAINTS

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ATTACHMENT 2—CONDITIONS OF APPROVAL

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INTRODUCTION

The Operators must comply with the Conditions of Approval (COAs) of the Selected Alternative, which are listed in **Table 2.1**. These COAs do not reiterate, or excuse implementation of, the primary components of the Selected Alternative as described in Section 3 of the CD-C ROD. Measures identified in Table 2.1 include standard operating procedures and measures from the FEIS, including the Transportation Plan (Appendix N); Biological Opinion (Appendix Q2); Wildlife Inventory, Monitoring, and Protection Plan (Appendix I); Best Management Practices for Fugitive Dust Control (Appendix P); and the Muddy Creek Watershed Monitoring Plan (Appendix O). They do not reiterate the regulatory requirements listed in Chapter 1, Section 1.6 of the FEIS.

Measures identified in **Table 2.2** are mitigation measures that were developed as a result of the impact analysis in the CD-C FEIS and will be implemented as Conditions of Approval.

Measures identified in **Table 2.3** are RFO RMP environmental constraints.

Additional COAs are usually included with the measures below on a site-specific basis to reflect requirements that apply to local conditions, such as seasonal wildlife restrictions, special surveys, specific constraints on road or well pad location or construction, and/or additional reclamation requirements.

ATTACHMENT 2—CONDITIONS OF APPROVAL

Table 2.1. Conditions of Approval of the Selected Alternative

Resource	Condition(s) of Approval
Geology	<ul style="list-style-type: none"> • See COAs identified for soils, vegetation, and water resources.
Paleontology	<ul style="list-style-type: none"> • See COAs identified for soils, vegetation, and water resources. • If a BLM assessment indicates “(a) the presence or high probability of occurrence of vertebrate fossils or uncommon non-vertebrate fossils (PFYC Class 4 or 5), or that the probability is unknown (Class 3), in the area of the proposed federal action...and (b) a reasonable probability that those resources will be adversely affected by the proposed action,” then measures such as a field survey, onsite monitoring, special stipulations, avoidance, or other mitigation may be required. • The location of the project may be changed based on the results of the field survey. • Monitoring may be required arising from the NEPA process or upon the discovery of paleontological resources during project activities. • If paleontological resources, either large or conspicuous, and/or of a significant scientific value are discovered during construction, the find will be reported to the AO immediately. Construction will be suspended within 250 feet of said find. An evaluation of the paleontological discovery will be made by a BLM-approved professional paleontologist within five (5) working days, weather permitting, to determine the appropriate action(s) to prevent the potential loss of an significant paleontological values. Operations within 250 feet of such a discovery will not be resumed until written authorization to proceed is issued by the AO. The Operator will bear the cost of any required paleontological appraisals, surface collection of fossils, or salvage of any large conspicuous fossils of significant scientific interest discovered during the operation. • Implementation of BLM WO IM No. 2008-009, Potential Fossil Yield Classification (PFYC) System for Paleontological Resources on Public Lands • Implementation of BLM WO IM No. 2009-011, Assessment and Mitigation of Potential Impacts to Paleontological Resources

ATTACHMENT 2—CONDITIONS OF APPROVAL

Resource	Condition(s) of Approval
Soils	<ul style="list-style-type: none"> • Construction, maintenance, and reclamation operations with frozen material or during periods when the soil material is saturated is expressly prohibited. If equipment, including licensed highway vehicles, creates ruts in excess of four (4) inches deep, the soil shall be deemed too wet to adequately support maintenance and/or heavy equipment. • Accumulated snow present on the ground at the outset of construction, maintenance, or reclamation activities shall be removed before the soil is disturbed and piled downhill and/or downwind from the disturbed area. Equipment used for any non-construction snow removal operations will be equipped with 6 inch shoes to ensure blades do not remove topsoil or vegetation. Written approval must be obtained before snow removal related to a federal action but outside of designated disturbance areas is undertaken. • Clearly remove, segregate, and delineate from all other spoils, all available topsoil from constructed locations and surface disturbances including areas of cut and fill. Stockpile and clearly identify topsoil at the site for use in reclamation on all areas of surface disturbance (well pads, roads, pipelines, etc.). • Sediment fences, straw wattles, erosion mats, and/or hay bales should be used to minimize erosion and sediment transport on the disturbance area. • If temporary surface pipelines are used to transport water, they shall be placed/removed when the ground surface is dry. Surface blading prior to line placement is prohibited. The pipelines must be removed within 30 days after well completion (or determination of inactivity). • Construction control stakes shall be placed as necessary to ensure construction of the well pad, topsoil stockpile, spoil pile, and outer limits of the area to be disturbed in accordance with the specifications outlined in the individual APD. The Operator shall assume full responsibility for protecting all stakes and offsetting any additional stakes or grades which may be necessary. • Before proposed road construction activities begin, the topsoil must be bladed to the side of the road and stockpiled. The topsoil stockpile shall be contoured so as to prevent water ponding or flow concentration. Once the borrow ditch and the cut slopes are constructed, cleared vegetative material and topsoil that is windrowed shall be spread back onto the cut/fill slopes of the road, removing any windrows or berms remaining at the edge of the road. • If soils along the access road route are dry during road construction, use, and/or maintenance, fresh water shall be applied to the road surface to facilitate soil compaction and minimize soil loss as a result of wind erosion. • Construction and other surface-disturbing activities will be prohibited with frozen material unless the holder receives an approved exception. When there is a potential for frozen material, the holder is required to request in writing an exception to this limitation. This exception may be approved in writing by the Authorized Officer. • Prior to fill construction, the existing surface shall be sloped to avoid sharp banks and allow equipment operations. No fills shall be made with frozen or water saturated soils. Construction equipment shall be routed evenly over the entire width of the fill to obtain a thorough compaction.

ATTACHMENT 2—CONDITIONS OF APPROVAL

Resource	Condition(s) of Approval
Soils, continued	<ul style="list-style-type: none"> • Loading and unloading of soils shall be confined to the downwind side of the stockpile (CD-C FEIS Appendix P) • Wet suppression using water shall be used to control fugitive dust on stockpiles. • For stockpiles that will be onsite for longer periods of time, Operators shall seed the stockpiles with appropriate vegetation or use wind barriers as appropriate. • Chemical stabilizers shall not be used on pipelines or stockpiles as these may hinder successful reclamation.
Water Resources	<ul style="list-style-type: none"> • If groundwater or permeable/porous subsoil or bedrock is encountered upon construction of the pad or pits, or upon drilling and completing shallow holes for surface conductor, rate/mouse holes, or water supply well, the Operator shall immediately notify the AO's representative. • No construction and/or reclamation shall block or change the natural course of any drainage, nor shall topsoil, waste, or fill material be deposited below high water lines in riparian areas, flood plains, or in natural drainage ways. The lower edge of soil or other material stockpiles will be located outside active floodplains. All spoils will be placed where they can be retrieved without creating additional surface disturbance and where they do not impede and/or contribute sediment to watershed and drainage flows. The Operator shall also reconstruct and stabilize stream channels, drainages, and ephemeral draws to exhibit similar hydrologic characteristics that were found in stable, naturally occurring and functioning systems. • Drainage and run-on/runoff shall be diverted away from all new construction naturally or through the use of diversion ditches/berms and/or soil berms or stockpiles. All drainage structures shall approximate topographic contour lines, have a grade no greater than 0.5 to 1 percent, and shall release water onto natural undisturbed ground without causing additional and/or accelerated erosion. Water bars, wattles, hay bales, and/or silt fences shall be used as needed to reduce surface runoff velocity and promote upland sediment deposition, thus reducing drainage/channel sedimentation and erosion. • Silt fences, if needed, would be installed after topsoil removal and before pad leveling begins and must remain in place until interim reclamation is complete and there is adequate vegetation present to stabilize the soil. Silt fences would be constructed in locations where surface erosion is evident or potential for surface erosion exists such as areas of steep slopes or highly erosive soils. Fences would be installed at the inside edge of disturbance. • Silt fences would be constructed using metal posts that are at least 5 feet long with at least 2 feet in the ground (3 feet above ground) with 8 feet spacing if a wire re-enforcement backing is used or 6 feet spacing if no wire backing is used. The fabric is to be toed into the ground at the base of the fence a minimum of 8 inches deep and an 18 inch overlap is required when splicing two fences together. The fabric is to be installed on the uphill side of the metal posts and attached to the posts at least every 6 inches along the length of the post. Silt fences are to be inspected at least once a month or 48 hours after a rain storm event. If holes in the fence or undercutting of the fence are found, repair is required within 48 hours of discovery. When silt accumulates to a height equal to two-thirds the height of the fabric, the silt is to be cleaned out and deposited on the excess spoils pile.

ATTACHMENT 2—CONDITIONS OF APPROVAL

Resource	Condition(s) of Approval
Water Resources, continued	<ul style="list-style-type: none"> • The holder shall design and construct adequate water-control structures in each drainage crossing to prevent excessive erosion along the pipeline and protect the pipeline from the natural erosion process within the drainage. • Prior to any discharge, hydrostatic testing water will be tested and processed, if necessary, to ensure that the water meets local, State or Federal water quality standards. Prior to discharge of hydrostatic testing water from the pipeline, the holder shall design and install a suitable energy dissipater at the outlets, and design and install suitable channel protection structures necessary to ensure that there will be no erosion or scouring of natural channels within the affected watershed as a result of such discharge. The holder will be held responsible for any erosion or scouring resulting from such discharge. Sandbags, rock, or other materials or objects installed shall be removed from the site upon completion of hydrostatic testing. • The holder is prohibited from discharging oil or other pollutants into or upon the navigable waters of the United States, adjoining shorelines, or the waters of the contiguous zone in violation of Section 311 of the Clean Water Act as amended, 33 U.S.C. 1321, and the regulations issued there under, or applicable laws of the State(s) of Wyoming and regulations issued there under. Holder shall give immediate notice of any such discharge to the AO and such other Federal and State officials as are required by law to be given such notice. • The BLM will implement CD-C FEIS Appendix O – Muddy Creek Watershed Monitoring Plan.
Air Quality	<ul style="list-style-type: none"> • Development of an effective air mitigation plan in cooperation with the project proponents, Wyoming DEQ, EPA, and other federal land managers. • Emissions of particulate matter from well pad, road, and other facility construction, operation, and reclamation activities will be minimized by the application of water or other dust suppressants. Dust inhibitors will be used as necessary on locations that present a fugitive dust problem. The use of chemical dust suppressants on public surface shall require prior approval from the AO. • Operators shall carpool as much as possible to reduce fugitive dust emissions.
Vegetation	<ul style="list-style-type: none"> • Measures included in soils, range, wildlife, reclamation. • Operators are required to implement fugitive dust control measures as described in Soils and Air Quality.

ATTACHMENT 2—CONDITIONS OF APPROVAL

Resource	Condition(s) of Approval
Invasive, Non-Native Plant Species	<ul style="list-style-type: none"> • Right-of-way, lease holders, and APD holders shall monitor and control noxious and invasive weeds, according to an approved weed management plan, on project disturbed areas and native areas infested as a direct result of the project. The control methods shall be in accordance with guidelines established by the EPA, BLM, and state and local authorities. Prior to the use of pesticides, the Operator will obtain written approval from the AO. • Pesticide Use Proposals shall be submitted to and approved by the BLM AO-Weed Coordinator, prior to any application of any herbicide on BLM lands. Pesticide Use Proposals will be tiered to the approval Reclamation Plan/Weed Management Plan. • Copies of daily Pesticide Application Records and Summary Herbicide Use Reports are due monthly to the BLM AO-Weed Coordinator. • To further reduce the spread of invasive and noxious weeds following construction activities, inspections for noxious weeds will be conducted each year along with revegetation monitoring, during the first five years following construction. Thereafter, weed surveys would be conducted at least once every three years at appropriate times as directed by the AO, for the life of the project. Information from these surveys will be included in the annual report on reclamation status.
Wildlife	<ul style="list-style-type: none"> • If dead or injured raptors, big game, migratory birds, or unusual wildlife are observed on the project area, Operator personnel will contact the RFO and the WGFD. Under no circumstances will dead or injured wildlife be approached or handled by Operator personnel. • Operators shall notify the BLM immediately if raptors are found nesting on or within 1200 feet of project facilities and assist the BLM as necessary in erecting artificial nesting structures (ANSs) as appropriate. The use of ANSs will be considered as a last resort for raptor protection. If nest manipulation or a situation requiring a “taking” of a raptor nest becomes necessary, a special permit will be obtained from the FWS and will be initiated with sufficient lead time to allow for development of mitigation. Required corresponding permits will be obtained from the WGFD. • Operators and Operator’s sub-contracted personnel shall not intentionally harm or harass wildlife. • Fencing will be installed around produced water and condensate tank batteries in order to help maintain the integrity of the surrounding containment structure and to prevent wildlife from entering the area. • All open vent stack equipment (including stacks, exhausters, or vent pipes) shall be designed and constructed to prevent entry by birds and bats and to discourage perching through the use of anti-perch cones and vent covers. • When blading/removing snow, drifts/berms will be constructed with a gap of 35 yards every ¼ mile, to allow unobstructed movement of wildlife.

ATTACHMENT 2—CONDITIONS OF APPROVAL

Resource	Condition(s) of Approval
Wildlife, continued	<ul style="list-style-type: none"> • If right-of-way fencing is required, it will be kept to a minimum and the fences will meet the BLM/WGFD approval for facilitating wildlife movement. Wildlife-proof fencing will be used only to enclose areas that are potentially hazardous to wildlife or reclaimed areas where it is determined that wildlife is impeding successful reclamation. • Snow fences, if used, will be limited to segments of one-quarter mile or less. In addition, escape openings will be provided along roads in big game crucial winter ranges, as designated by the BLM, to facilitate exit of big game animals from snowplowed roads. • Plugs or embankments providing wildlife with access out of and across open pipeline trenches shall be installed, at a minimum, every 1320 linear feet along open pipeline trenches. • Construction holes left open overnight shall be covered. Covers shall be secured in place and shall be strong enough to prevent livestock or wildlife from falling through and into a hole. • Operator and BLM implementation of CD-C FEIS Appendix I, Wildlife Mitigation, Monitoring, and Protection Plan is required. Operators shall attend meetings to identify annual monitoring and inventory needs in conjunction with the BLM, WGFD, and other cooperators as necessary. Any monitoring/inventory activities conducted by the Operators will be provided to the BLM's Monitoring Without Borders team by November 15 of each calendar year and will follow the format presented in CD-C FEIS Appendix I, Table I-1. <p>Pygmy Rabbit</p> <ul style="list-style-type: none"> • To protect the identified pygmy rabbit habitat, avoid tall and dense sagebrush habitat patches where possible. • To protect the identified pygmy rabbit habitat, and to avoid potential impacts to pygmy rabbits, a fence will be constructed, prior to any other ground disturbing activities. The fence will be constructed so that it is clear that no surface disturbance should occur beyond the fence in that area. The fence shall remain in place until completion of final reclamation. The fence will be constructed based on the wildlife biologist's recommendations. • To protect the identified pygmy rabbit habitat, subsequent to surface-disturbing activities, presence/absence surveys for pygmy rabbits will be conducted prior to any surface disturbance, and post disturbance in the appropriate associated habitat within ¼-mile of the edge of the proposed surface disturbance. The surveys must be performed by a wildlife biologist familiar with pygmy rabbits and their associated habitat. The survey protocol is available from the BLM Rawlins Field Office.

ATTACHMENT 2—CONDITIONS OF APPROVAL

Resource	Condition(s) of Approval
Wildlife, continued	<ul style="list-style-type: none"> • To protect potential pygmy rabbit habitat, prior to any surface disturbance, a presence/absence survey for pygmy rabbits will be conducted in all potential habitat within ¼ mile of the edge of the proposed surface disturbance. Surveys are to be performed by a wildlife biologist familiar with pygmy rabbits and their habitat. The survey protocol is available from the BLM Rawlins Field Office upon request. If evidence of pygmy rabbits is found during the preconstruction survey, then additional stipulations may apply, and another survey will be required 4 years after the initial disturbance. <p>Wyoming Pocket Gopher</p> <ul style="list-style-type: none"> • To protect potential Wyoming pocket gopher habitat, prior to any surface disturbance, a presence/absence survey for active pocket gopher mounds will be conducted in all potential habitat within the area proposed for surface disturbance. Surveys are to be performed by a wildlife biologist familiar with pocket gopher life history and their associated habitat. The survey protocol is available from the BLM Rawlins Field Office upon request. If evidence of pocket gophers is found during the preconstruction survey, then additional stipulations may apply. • When active pocket gopher mounds have been identified by the presence/absence survey, the proposed surface-disturbing activities will avoid the active pocket gopher mounds by 75 meters. Eight t-posts or rebar stakes will be placed at a 75 meter radius around the active pocket gopher mounds prior to any other ground disturbing activities, if required by the BLM wildlife biologist. The posts/stakes will be used to identify the area of avoidance associated with the active pocket gopher mounds. The posts/stakes shall remain in place until completion of the associated surface-disturbing activity. • When the proponent for surface-disturbing activity does not wish to avoid the active pocket gopher mounds by 75 meters, then a classification survey (via live capture) must be completed to identify the associated pocket gopher to the species level. If the results conclude that the associated species is a Wyoming pocket gopher then the “Occupied Wyoming Pocket Gopher Habitat Protection Measures” will apply. If the results conclude that the associated species is a Northern pocket gopher, then the proposed surface disturbance may proceed without any mitigation. If the classification survey fails to conclusively identify the associated pocket gopher to the species level, then it will be assumed that the species is a Wyoming pocket gopher and the “Occupied Wyoming Pocket Gopher Habitat Protection Measures” will apply.
Special Status Species	<ul style="list-style-type: none"> • Install devices to preclude raptor perching near prairie dog towns and pygmy rabbit burrows • If any dead or injured threatened, endangered, proposed or candidate animal species is located during construction or operation, the U.S. Fish and Wildlife Service’s Wyoming Field Office (307-772-2374), its law enforcement office (307-261-6365) and the BLM Rawlins Field Office (307-328-4200) shall be notified within 24 hours. If any dead or injured BLM sensitive species is located during construction or operation, the Rawlins Field Office shall be notified within 24 hours.

ATTACHMENT 2—CONDITIONS OF APPROVAL

Resource	Condition(s) of Approval
Wild Horses	<ul style="list-style-type: none"> Avoidance of horses. Operators and Operator's sub-contracted personnel shall not intentionally harm or harass wild horses.
Visual Resources	<ul style="list-style-type: none"> All wells, above-ground structures, production equipment, tanks, transformers, and insulators not subject to the coloring requirements for safety shall be painted the color specified by the BLM Visual Resource Management specialist in the individual permit.
Recreation	<ul style="list-style-type: none"> Minimize conflicts between project vehicles and equipment and recreation traffic by posting appropriate warning signs and speed limits, conducting operator safety training, and requiring project vehicles to adhere to low speed limits, refrain from littering and drive only on approved project roads. Operators will inform their employees, contractors, and subcontractors that long term camping (greater than 14 days) on federal lands or at federal recreation sites is prohibited. Operators will direct their employees, contractors, and subcontractors to abide by state and federal laws and regulations regarding hunting and artifact collecting.
Cultural and Historical Resources	<ul style="list-style-type: none"> Cultural resource inventories will be required. Class (I, II, or III) level will be determined on a site-specific basis. The Operator will be responsible for any costs associated with cultural resource inventories. If any cultural values (sites, artifacts, human remains) are observed during operation of the lease/permit/right-of-way, they will be left intact and the AO notified. The AO will conduct an evaluation of the cultural values to establish appropriate mitigation, salvage, or treatment. The Operator is responsible for informing all persons in the area who are associated with the project that they will be subject to prosecution for knowingly disturbing historic or archaeologic sites, or for collecting artifacts. If historic or archaeological materials are uncovered during construction, the Operator shall immediately stop work that might further disturb such materials, and contact the AO. Within seven (7) days after the Operator contacted the BLM, the AO will inform the Operator as to: whether the materials appear eligible for the National Register of Historic Places; the mitigation measure the Operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary); and a timeframe for the AO to complete an expedited review under 36 CFR 800.11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the Operator will then be allowed to resume construction and operations. All surface disturbances may be monitored by a BLM permitted Archaeologist.

ATTACHMENT 2—CONDITIONS OF APPROVAL

Resource	Condition(s) of Approval
Transportation and Access	<ul style="list-style-type: none"> • Operators will participate in transportation planning as outlined in FEIS Appendix N, Transportation Plan. Operators will attend annual transportation planning meetings where locations of existing and proposed development/maintenance will be presented and discussed. • All access roads and drainage control structures, whether existing or newly constructed, shall be both constructed to resource road standards and regularly maintained in a safe and usable condition as outlined in BLM Manual Section 9113. • The Operators shall enter into maintenance agreements with all other authorized users of common access road(s). The costs of road maintenance shall be shared proportionally among the authorized users. Upon request, the AO shall be provided copies of any maintenance agreement(s). • Engineered roads and/or culverts shall be designed in accordance with the Engineered Road Requirements, with four copies of the following information submitted to the BLM for approval, prior to construction: plan, profile, and typical cross-section. • Centerline stakes shall be placed in the field, with culvert locations marked on the centerline, for the BLM review before final design approval. In addition, slope stakes shall be placed at the top of the cut and the bottom of the fill for those portions of the road that are engineered. All roadway cuts and fills shall be designed to balance from earthwork with the right-of-way or an approved borrow source. • Perform a hydrologic analysis to design culverts sized to pass a 25-year precipitation event with no head developed at the culvert inlet. • The submitted plans must be signed/certified by a professional engineer and will include any special notes for construction and cut/fill balance notes. • All Operators and Operator's representatives vehicles are restricted to authorized travel routes only and shall not use any other access route, including two-track roads, trails, and pipeline rights-of-way to access facilities. • Two track roads shall not be cut off as a direct result of construction, maintenance, or reclamation of the well access road or associated well facilities, unless authorized by the BLM. • Prior to construction, roads shall be surveyed and staked with construction control stakes set continuously along the centerline at maximum 100-foot intervals (less where needed to be inter-visible) and at all tangent and curve control points, fence or utility crossings, and culverts.

ATTACHMENT 2—CONDITIONS OF APPROVAL

Resource	Condition(s) of Approval
Transportation and Access	<ul style="list-style-type: none"> • All culverts shall be a minimum of 18 inches in diameter. Culverts shall have a minimum of 12 inches of fill or ½ the pipe diameter, whichever is greater, placed on top of the culvert, and shall be of length sufficient to allow at least 12 inches of culvert to extend beyond the toe of any slope. The inlet and outlet shall be set on grade. No rocks shall be used in the bed material and no rocks greater than 2 inches in diameter will be immediately adjacent to the culvert. The entire length of pipe shall be bedded on native material before backfilling, which shall be completed using unfrozen material and rocks no larger than 2 inches in diameter; compact the backfill evenly in 6-inch lifts on both sides of the culvert. A permanent marker shall be installed at both ends of the culvert to help prevent traffic from damaging the culvert. • Wing-ditches shall be staked and constructed at a slope of 0.5 to 1.0% downslope unless otherwise approved by the AO. All wing and drainage ditches and culverts shall be kept clear and free flowing, and shall also be maintained in accordance with the original construction standards. Drainage structures shall not discharge directly into/onto natural drainages/channels, and/or use riprap or other armoring to protect from erosion. • Low water crossings shall be constructed perpendicular to the channel and at original channel elevation in a manner that will not block or restrict existing channel flow. Excavated material shall be stockpiled for use in reclamation of the crossings. • The minimum travel-way width of the immediate access road will be 14 feet with turnouts at least 10 feet in width. No structure will be allowed to narrow the road top. The inside slope will be 4:1. The bottom of the ditch will be a smooth V with no vertical cut in the bottom. The outside slope will be 2:1 or flatter. After the road is crowned and ditched with a .03 - .05 ft/ft crown the topsoil and windrowed vegetative material shall be pulled back down on the cut slope so there is no berm left at the top of the cut slope. Turnouts will be spaced at a maximum distance of 1000 feet and will be intervisible. If the access road crosses a floodplain, the ditch shall be flat-bottomed so as to provide material to raise the road, unless otherwise approved by the AO • If snow removal from the road is undertaken, equipment used for snow removal operations shall be equipped with shoes to keep the blade six-inches off the road surface. Holder shall take special precautions where the surface of the ground is uneven and at drainage crossings to ensure that equipment blades do not destroy vegetation. • All roads and public areas shall be constructed to provide drainage and minimize erosion. Culverts shall be installed if necessary to maintain drainage.

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Resource	Condition(s) of Approval
Range Resources	<ul style="list-style-type: none"> • Fencing will be installed around produced water and condensate tank batteries in order to help maintain the integrity of the surrounding containment structure and to prevent livestock from entering the area. • The immediate repair/replacement to BLM standards of any range infrastructure breached, altered, or damaged by construction, drilling, or operation activities related to individual APDs shall be the responsibility of the Operator. • All fence relocations will be in accordance with BLM approval. • When blading/removing snow, drifts/berms will be constructed with a gap of 35 yards every ¼ mile, to allow unobstructed movement of livestock. • All cattle guards shall be designed and maintained consistent with BLM standards and shall be a minimum of 16 feet wide and 8 feet long; set on either timber, pre-cast concrete, or cast-in-place concrete bases at right angles to the roadway. They shall have drop down wings and an adjacent 16-foot wide tubular bypass gate; not narrow the road surface; and have fence and end panels on either side constructed using 3 posts with H-braces. • When construction activity in connection with the right-of-way breaks or destroys a natural barrier used for livestock control, the gap, thus opened, shall be fenced to prevent the drift of livestock. The subject natural barrier shall be identified by the AO and fenced by the holder as per instruction of the AO. • Construction holes left open overnight shall be covered. Covers shall be secured in place and shall be strong enough to prevent livestock or wildlife from falling through and into a hole.
Waste and Hazardous Materials	<ul style="list-style-type: none"> • Operators will cooperatively permit and operate in-field disposal facilities for solid waste, produced water, drilling mud, and other activities. • The Operator shall comply with the Hazardous Materials Management Plan in the RMP (Appendix 32 of the RFO RMP) including requirements to transport, store, utilize, and dispose of hazardous substances. The Operator shall maintain a hazardous substances release contingency plan that shall include, among other things, provision to notify the AO in the event of any release of hazardous substances associated with project operations. Treatment chemicals may require additional storage and containment measures and facilities depending on chemical classification and hazard. • If during any phase of the construction, operation, or termination of the pipeline or related facilities any oil or other pollutant should be discharged from the pipeline system, or from containers or vehicles impacting Federal lands, the control and total removal, disposal, and cleanup of such oil or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of holder to control, cleanup, or dispose of such discharge on or affecting Federal lands, or to repair all damages to Federal lands resulting there from, the AO may take such measures deemed necessary to control, clean up the discharge, and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the AO shall not relieve the holder of any liability or responsibility.

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Resource	Condition(s) of Approval
General	<ul style="list-style-type: none"> The Operator shall be responsible for the prevention and suppression of all fires on public lands caused by its employees, contractors, or subcontractors. During conditions of extreme fire danger, surface use operations may be either limited or suspended in specific areas, or additional measures may be required by the AO. Should a fire occur, it shall be immediately reported to the RFO.
Pits	<ul style="list-style-type: none"> All oil and gas pits that could contain fracture/stimulation fluids, recycled pit fluids, or produced water, except those only containing fresh-water based constituents, are required to be lined with an impermeable (12 mil minimum with a permeability less than or equal to 1×10^{-7} cm/sec) liner. The liners shall be physically and chemically compatible with all substances which it may contact and shall be of sufficient strength and thickness to withstand normal installation and use, and installed so that it will not leak. The liner shall be installed over a smooth sub-grade, matting, or fill materials (e.g. sifted dirt, sand, or bentonite) free of pockets, loose rocks, and other objects that could damage the liner. The only fluids/waste materials which are authorized to go into reserve pits are RCRA-exempt exploration and production wastes. Any evidence of RCRA non-exempt wastes being put into the reserve pit may result in the BLM AO requiring specific testing and closure requirements. All pits are required to maintain a minimum of 2 feet of freeboard between the liquid level and the top of the liner. If operations cause fluid levels in pits to rise above the required freeboard, immediate notification shall be provided to the AO with concurrent steps taken to cease the introduction of additional fluids, until alternative containment methods can be approved. Flaring of gas into the reserve or completion pits will not be allowed without prior approval from the AO. Flaring into lined pits is prohibited. All pits shall be kept free of trash, debris, solid wastes, and other unauthorized waste materials including oil and liquid hydrocarbons. For the protection of livestock and wildlife, all pits and open cellars shall be fenced on all sides, with corner bracing, immediately upon construction. Reserve, flare, completion, and production pits shall be adequately fenced during and after drilling operations until pits are reclaimed so as to effectively keep out wildlife and livestock. Operator shall, within ten (10) days of discovery, remove any floating hydrocarbons from pit surface. Approved netting (mesh diameter no larger than one inch) is required over any pit that contains or is identified as containing hydrocarbons or hazardous substances (per RCRA 40 CFR Part 26.1 or CERCLA Section 101(14)(E)).

ATTACHMENT 2—CONDITIONS OF APPROVAL

Resource	Condition(s) of Approval
Pits, continued	<ul style="list-style-type: none"> Pits shall be dried, backfilled, and closed within six (6) months from well completion (total depth) or well plugging. Pits must be void of all free fluids prior to backfilling. Pit trenching or squeezing is prohibited. Pits may be dewatered/dried in the following manner: natural evaporation, mechanical aeration, chemical and mechanical solidification (e.g. with fly ash, cement kiln dust, etc.) and/or hauled to an approved DEQ disposal site. The installation/operation of any sprinklers, misters, aerators, pumps, hoses, and related equipment shall ensure that water spray or mist does not drift outside of the pit. All other dewatering/drying, removal or disposal methods not listed in the APD and or COAs shall have prior written approval from the AO. Pits, once dry, shall be backfilled and compacted with a minimum cover of five (5) feet of soil, void of any topsoil, vegetation, large stones, rocks or foreign objects. The pit area shall be mounded to allow for settling and to promote positive surface drainage away from the pit. Before backfilling synthetically lined reserve pits, those liner portions remaining above the "mud line" shall be cut off as close to the top of the mud surface as possible and disposed of at an approved solid waste disposal facility. The pit bottom and remaining liner shall not be trenched, cut, punctured, or perforated.
Fluids	<ul style="list-style-type: none"> All storage, removal and disposal of produced water must be in accordance with and comply with Onshore Oil and Gas Order No. 7. Produced water must be disposed of at a permitted off-site commercial disposal facility, unless approved otherwise by the BLM AO. The onsite storage/disposal of produced water, in open pits, tin horns, sumps, etc., is not authorized except as follows: 1) produced water from the well subsequent to drilling may be disposed of in the approved well site reserve pit (for up to 90 days), and/or 2) used for well drilling or completion, upon prior written approval from the AO via approved APD or Sundry. Produced water may be transported and used for drilling/completion operations from approved fee, state, or federal wells/leases to federal wells/leases within the developed field/unit and/or EIS area, subject to WOGCC and BLM approval. Pit drilling fluids may be transferred from a reserve pit at an approved federal well location to a lined reserve pit at another approved federal well location, for the purpose of drilling the well. Transfer/reuse shall only be permitted when transfer is by a lease Operator from one or more pits to another pit or pits on the Operator's federal lease/unit or adjacent federal lease. Unless approved by this APD, the transfer and reuse of pit drilling fluids shall require prior written approval from the AO, via a Sundry Notice (Form 3160-5). The AO may authorize the use of produced water or reuse of pit drilling fluids for drilling when: 1) surface casing has been set with fresh water through any and all possible fresh water zones, 2) use is for drilling/completion only, and 3) the receiving pit is lined. Pit fluids may be transferred by a lease Operator from one or more pits to another (lined) pit or pits on the Operator's federal lease/unit or adjacent federal lease, for the purpose of fluid consolidation and mechanical/chemical drying and disposal. The 6-month pit closure requirement shall apply. Unless approved by this APD, the transfer of pit fluids for consolidation/disposal shall require prior written approval from the AO, via a Sundry Notice (Form 3160-5).

ATTACHMENT 2—CONDITIONS OF APPROVAL

Resource	Condition(s) of Approval
Fluids, continued	<ul style="list-style-type: none"> Initial Operator requests for the transport and use/reuse of produced water or pit drilling fluids or the transfer/consolidation of pit fluids shall include: 1) the potential locations/leases in which fluids are to be transferred to and from, and 2) the potential quantity to be moved. Requests shall be submitted for prior written approval from the AO via APD or Sundry Notice. Upon completion of transport, use/reuse or consolidation, the specific information on leases, units or locations and quantities transferred shall be submitted to the AO, via Sundry Subsequent Report. Transportation of fluids shall be along approved haul routes and authorized right-of-ways. Temporary surface pipelines may be authorized by the AO for the transfer of fresh water only, and NOT for produced water or pit fluids. Drilling water sources/supplies or any changes to drilling water sources/supplies, the fate of drilling/completion fluids, routes and means of fluid transportation/disposal, and location or method of produced water disposal requires prior written approval from the AO via approved APD, Sundry Notice, or Right-of-Way, as applicable. The drilling of water wells in federal lands shall require prior BLM approval via APD, Sundry, or right-of-way as applicable, in addition to State Engineer Office approval.
Blowout Preventer and Related Equipment (BOPE)	<ul style="list-style-type: none"> All choke lines from the drilling spool forward, shall be straight steel lines flanged at both ends, unless turns use tee blocks or are targeted with running tees and shall be anchored to prevent whip and reduce vibration. All choke lines shall have the same pressure rating as the BOP stack and choke manifold. The diameter of this line shall be a minimum of 2 inches for a 2M BOP system and a minimum of 3 inches for a 3M and greater BOP system. When an Operator chooses to use flexible lines for choke operations equipment the Operator must make a request for approval in advance of its use. The request must provide documentation showing the flexible hose was designed specifically for the purposes of choke operations. The request for approval must include the manufacturer's technical specifications for the flexible hose(s) under consideration. Specifications must include as a minimum: <ul style="list-style-type: none"> The smallest internal diameter of any section or part of the flexible hose assembly. The rated working pressure and temperature of the flexible hose assembly. The Minimum Bend Radius (MBR) at rated working pressure.

ATTACHMENT 2—CONDITIONS OF APPROVAL

Resource	Condition(s) of Approval
Blowout Preventer and Related Equipment (BOPE), continued	<ul style="list-style-type: none"> • Manufacturer's technical specification must be kept onsite and available for inspection at all times. Flexible hoses once approved and installed must match the original manufacturer's technical specifications regarding all stated dimensions and ratings. Flexible hoses which have been altered, repaired, or remanufactured in any way from their original specification without approval or certification from the original manufacturer will not be allowed. If the specifications are not available on site or the hose does not match the specifications, operations may be shut down until correction is accomplished. • Each flexible hose must be marked/stamped by the manufacturer with the following information clearly legible and accessible on the steel sections of each end of the flexible hose (end fittings, couplers, flanges, stiffeners, etc.): <ul style="list-style-type: none"> • Name or identification of the manufacturer. • Serial number. • The internal diameter of the flexible hose assembly. • The rated working pressure of the flexible hose assembly. • Flexible hoses must be firmly anchored to prevent excessive whip or vibration. Anchors must be constructed in a manner capable of withstanding whip and vibration given the rated working pressure and flow rates of the well control equipment. • Anchors must be attached to the flexible portion of the hose and not to the "metal end assemblies" (e.g. hubs, flanges, stiffeners, etc.) • Flexible hoses of twenty (20) feet or more in total length must be supported in order to keep the hose fairly level and secure from excessive movement. Leveling support locations must also be anchored adequately to withstand whip and vibration under rated working pressures and rated flowing conditions. • Each and every bend in the flexible hoses exceeding 45 degrees must be anchored. • Use, operation, and maintenance of flexible hoses will comply fully with the manufacturer's specifications unless otherwise specified by the AO. • Minimum diameters for choke lines will comply with the requirements of Onshore Order No.2, III.A.2.a. • Flexible hose end connections will meet all minimum requirements of Onshore Order No. 2. For example 3M systems and above require "All BOPE connections subjected to well pressure shall be flanged, welded, or clamped."

ATTACHMENT 2—CONDITIONS OF APPROVAL

Resource	Condition(s) of Approval
Blowout Preventer and Related Equipment (BOPE), continued	<ul style="list-style-type: none"> • Flexible hoses used in Hydrogen Sulfide (H₂S) operations must provide proof the hose is approved by the manufacturer for use in this type of environment. • Flexible hoses which are deformed (kinks, flattened areas, dents, significant surface abrasions or wear, permanent bends, etc) from the manufacturer's design and operational specification will be replaced upon discovery. • A Form 3160-5 (subsequent Report Sundry Notice) shall be submitted to the AO's representative within five (5) working days following the test reporting the test results. The results reported will be a copy of the third party BOP test report including time and pressure charts, accumulator tests, notes/results made while performing the test, and recordation of any repair of BOP equipment made. • In the event that an operator chooses to use a buffer tank downstream of the choke assemblies for the purpose of manifolding the bleed lines together, valves shall be installed upstream to isolate a failure or malfunction without interrupting flow control. This will apply to use of a buffer tank on any 2M, 3M, 5M, 10M, or 15M BOPE system utilized the drill the well(s). <p>Casing and Cementing</p> <ul style="list-style-type: none"> • For all 5M BOPE systems or greater, a pressure integrity test of each casing shoe shall be performed. The formation at the casing shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole. • Pea Gravel or other material shall not be used to fill up around the surface casing in the event cement fall back occurs. • A Form 3160-5 (Subsequent Report Sundry Notice), along with a copy of the service company's materials ticket and job log shall be submitted to this office within 5 working days following the running and cementing of all casing strings. • Any change in the casing and cement design will be approved by the AO prior to the running of the casing string and/or cementing. • No freshly hard-banded rough carbide pipe/collars will be rotated in the surface casing. • Drilling of the surface casing interval will occur with fresh water only. • If a temporary surface pipeline is used to transport drilling water, the pipeline shall be laid and removed when the ground surface is dry so as to minimize surface disturbance. No blading or other alteration of the ground surface shall be allowed.

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Resource	Condition(s) of Approval
Blowout Preventer and Related Equipment (BOPE), continued	<ul style="list-style-type: none"> • The surface casing shall in all cases be cemented back to surface. In the event cement does not circulate to surface or fall back of the cement column occurs, remedial cementing shall be done to cement the casing back to surface. <p>Directional Drilling</p> <ul style="list-style-type: none"> • Per 43 CFR 3160.0-9 and 3162.4-2 for all wells drilled directionally, as Operator, you will be required to file with the Well Completion Report, Form 3160-4, a Certified Directional Survey. • This Certified Directional Survey, required by 1) above, will include a Directional Survey Certification Form as certified by the directional contractor and the Operator Bottom Hole Location Certification Form as specified in the Wyoming Oil & Gas Conservation Commission (WOGCC) letter to All Wyoming Oil and Gas Operators dated October 15,2009, as may be amended from time to time. • The requirements for a complete Certified Directional Survey are the same as found in the attachment to WOGCC letter to All Wyoming Oil and Gas Operators dated October 15, 2009, as may be amended from time to time. <p>Other</p> <ul style="list-style-type: none"> • In the event down hole operations threaten to or cause fluid levels in the reserve pit to encroach on the required 2-foot freeboard, immediate notification shall be provided to the AO with concurrent steps taken to minimize the introduction of additional fluids until alternative containment methods can be approved. • Rat and mouse holes (or any sub-grade excavations for drilling operations) shall be filled and compacted, with appropriate native materials, immediately upon release of the drilling rig from the location. • Any permanent plug placed in the well during drilling and/or completion operations must have prior approval of the AO. • As provided in NTL4A, gas produced from this well may not be vented or flared beyond an initial test period, 30 days or 50 MMcf, whichever first occurs, without approval of the AO. • Drill Stem Tests shall meet or exceed the requirements set forth in Onshore Oil and Gas Order No. 2. • All usable water, hydrocarbon and other mineral zones must be protected.

ATTACHMENT 2—CONDITIONS OF APPROVAL

Resource	Condition(s) of Approval
Blowout Preventer and Related Equipment (BOPE), continued	<ul style="list-style-type: none"> • Pursuant to Onshore Oil and Gas Order No. 2.III.B.1 .e. and the Rules and Regulations of the Wyoming Oil and Gas Conservation Commission (Chapter 3, Section 22.(a) (i)), the Operator shall report all fresh water flows encountered while drilling to the AO (Petroleum Engineer) prior to the running the next string of casing. The reported information shall include a) well name, number and location, b) the date the water flow was encountered, c) depth at which the water flow was encountered and d) estimated water flow rate into the well bore. The Operator shall file a Form 3 160- 5 (Subsequent Report Sundry Notice) of this same information within 30 days of releasing the drilling rig. • Open hole logs consisting of deep, medium, and shallow resistivity curves, a porosity log and gamma-ray and SP curves shall be run at TD to at least 50' above any zone which may be considered to be productive of hydrocarbons. • Completion Report: In accordance with 43 CFR 3160, Form 3160-4 (Well Completion or Recompletion Report and Log) must be submitted to the AO within 30 days after completion of the well or after completion of operations being performed, whether the well is completed as a dry hole or as a producer. Copies of all open hole and cased hole logs, core descriptions, core analyses, well test data, geologic summaries, sample descriptions, daily drilling reports, daily completion reports, formation test reports, stimulation reports, directional survey (if applicable), and all other surveys or data obtained and compiled during the drilling, completion, and/or work over operations, shall be included with Form 3160-4. Copies of all logs, as noted above, shall be submitted to this office on a compact disc in a ".las" digital file format and shall have a precision readout increment of 0.5 feet. Any Mud Log copy submitted to this office shall be in a ".tif" format. • Well Abandonment: In the event abandonment of the hole is desired, oral approval may be granted by the AO (Petroleum Engineer), but must be followed within 5 days with a Form 3160-5 (Sundry Notice of Intent to Abandon) which will give the complete plan of operation that will be utilized in the plugging. Unless the plugging is to take place immediately upon receipt of the oral approval, the AO (Petroleum Engineer) must be notified at least 24 hours in advance of the plugging of the well in order that this office can witness the plugging operation. Failure to obtain approval prior to commencement of abandonment operations shall result in immediate assessment under 43 CFR • 3163.1 (b)(3). The following will occur if the well is abandoned: <ul style="list-style-type: none"> ○ In order to reduce the visual impact of the reclaimed well site, the casing shall be cut off at the base of the cellar or 3 feet below the final restored ground level (whichever is deeper). The well bore shall then be covered with a metal plate at least ¼-inch thick and welded in place. On the metal plate shall the following information be permanently inscribed: i) company/Operator name, ii) lease number, iii) well name/number, and iv) well location description to the nearest quarter-quarter section (40 acres).
Blowout	<ul style="list-style-type: none"> ○ A GPS re-verification and certification of the abandoned well location shall be made for coordinates of degrees

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Resource	Condition(s) of Approval
Preventer and Related Equipment (BOPE)	<p>latitude and longitude with accuracy to the sixth decimal place. This well location re-verification shall be noted on the Subsequent Report Sundry Notice of Abandonment.</p> <ul style="list-style-type: none"> ○ A temporary steel fence post with an attached placard indicating the well name/number and location shall be placed adjacent to the well bore until final well site reclamation has been performed and the Final Abandonment Notice (FAN) is approved. ○ Within 30 days following completion of the well abandonment, the Operator shall file with this office subsequent Report of Abandonment (Form 3 160-5). To be included with this report is where the plugs were placed, volumes of cement used, well bore schematic as plugged, along with copies of all service company job log and service tickets. <ul style="list-style-type: none"> • The Operator shall promptly plug and abandon each newly completed, re-completed or producing well which is not capable of producing in paying quantities. No well may be temporarily abandoned for more than 30 days without prior approval of the AO. When justified by the Operator, the AO may authorize additional delays, no one of which may exceed an additional 12 months. Upon removal of drilling or producing equipment from the site of a well which is to be permanently abandoned, the surface of the lands disturbed shall be reclaimed in accordance with a plan first approved or prescribed by the AO or per the reclamation conditions of approval stated herein.
Right-of-Way Grant Terms and Conditions	<ul style="list-style-type: none"> • Individual grants are issued subject to the holder's compliance with all applicable regulations contained in Title 43 Code of Federal Regulations parts 2800 and 2880. • Upon grant termination by the AO, all improvements shall be removed from the public lands within 90 days, or otherwise disposed of as directed by the AO. • Failure of the holder to comply with applicable law or any provision of this right-of-way grant or permit shall constitute grounds for suspension or termination thereof. • The holder shall perform all operations in a good and workmanlike manner so as to ensure protection of the environment and the health and safety of the public. • The holder shall comply with all federal, state, and local regulations.

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Resource	Condition(s) of Approval
Right-of-Way Grant Terms and Conditions, continued	<ul style="list-style-type: none"> • The holder shall construct, operate, and maintain the facilities, improvements, and structures within this right-of-way in strict conformity with the plan of development which was approved and made part of the grant. Any relocation, additional construction, or use that is not in accord with the approved plan of development, shall not be initiated without the prior written approval of the BLM authorized officer (AO). A copy of the complete right-of-way grant, including all stipulations and approved plan of development, shall be made available on the right-of-way area during construction, operation, and termination to the AO. Noncompliance with the above will be grounds for an immediate temporary suspension of activities if it constitutes a threat to public health and safety or the environment. • The holder of an individual right-of-way grant or the holder's successor in interest shall comply with Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d <i>et seq.</i>) and the regulations of the Secretary of the Interior issued pursuant thereto. • The holder shall have, on-site, a qualified individual to serve as Compliance Coordinator. This individual will be responsible for assuring that all requirements of the Plan of Development and appropriate Additional Terms and Conditions are applied. The holder must provide the name of the Compliance Coordinator to the AO prior to any surface disturbance • The holder shall conduct all activities associated with the construction, operation, and termination of the right-of-way within the authorized limits of the right-of-way. • The holder shall inform the AO within 48 hours of any accidents on federal lands that require reporting to the Department of Transportation as required by 49 CFR Part 195. • The right-of-way holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, <i>et seq.</i> or the Resource Conservation and Recovery Act of 1976, 42 U.S.C. 6901 <i>et seq.</i>) on the right-of-way (unless the release or threatened release is wholly unrelated to the right-of-way holder's activity on the right-of-way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties. • The holder shall contact the AO at least 48 hours (two days) prior to the anticipated start of construction and/or any surface-disturbing activities. The AO may require and schedule a preconstruction conference with the holder prior to the holder's commencing construction and/or surface-disturbing activities on the right-of-way. The holder and/or his representative shall attend this conference. The holder's contractor, or agents involved with construction and/or any surface-disturbing activities associated with the right-of-way, shall also attend this conference to review the stipulations of the grant including the plan of development.

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Resource	Condition(s) of Approval
Right-of-Way Grant Terms and Conditions, continued	<ul style="list-style-type: none"> • A litter policing program shall be implemented by the holder, and approved of in writing by the AO, which covers all roads and sites associated with the right-of-way. • Prior to termination of the right-of-way, the holder shall contact the AO to arrange a pre- termination conference. This conference will be held to review the existing reclamation plan and termination provisions of the grant or agree to a new updated reclamation plan. • All design, material, and construction, operation, maintenance, and termination practices shall be in accordance with safe and proven engineering practices. • The holder shall provide for the safety of the public entering the right-of-way. This includes, but is not limited to barricades for open trenches, flagmen/women with communication systems for single- lane roads without intervisible turnouts, and attended gates for blasting operations. • The holder shall survey and clearly mark the centerline and/or exterior limits of the right-of-way. • Construction sites shall be maintained in a sanitary condition at all times; waste materials at those sites shall be disposed of promptly at an appropriate waste disposal site. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment. • Construction over and/or immediately adjacent to existing pipelines shall be coordinated, and in accordance with, the relevant pipeline companies' policy. • Except rights-of-way expressly authorizing a road after construction of the facility is completed, the holder shall not use the right-of-way as a road for purposes other than routine maintenance as determined necessary by the AO in consultation with the holder. • Holder shall maintain the right-of-way in a safe, usable condition, as directed by the AO. • The holder must be prepared to provide BLM copies of applications for and approved federal, state, and local operating permits.

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Resource	Condition(s) of Approval
Right-of-Way Grant Terms and Conditions, continued	<ul style="list-style-type: none"> • The applicant/holder shall furnish a reclamation cost estimate (RCE) to the BLM authorized officer for review and approval, estimating all the costs for the BLM to fulfill the terms and conditions of the grant in the event that the holder may not be able to do so. This estimate shall be prepared by an independent state licensed engineer, who is licensed in the state of Wyoming, and shall include such information including but not limited to, direct, indirect, administrative, equipment, contracting, monitoring, and reclamation costs, as well as Davis-Bacon and Related Acts locally prevailing wages potentially incurred by the BLM. Costs for the BLM to administer a reclamation contract and inspect and monitor the reclamation activities should be commensurate with the complexity of fully reclaiming the land. This may be a percentage-based determination by the BLM which it adds to the RCE as part of its bond determination. The RCE shall detail the estimated costs and shall be accompanied by the engineer's seal and signature. All costs of preparing and submitting the RCE shall be borne solely by the applicant/holder. The RCE, along with inflationary estimates, shall be the basis for the bond amount and shall remain in effect for 5 years unless the authorized officer determines that conditions warrant a review of the bond sooner. The performance and reclamation bond, in a form acceptable to the AO, shall be furnished by the holder and approved by the AO prior to the grant being issued. Should the bond furnished under this authorization become unsatisfactory at any time to the authorized officer, the holder shall, within 30 days of demand, furnish a new bond satisfactory to the AO.

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Table 2.2. Conditions of Approval from Mitigation Measures Developed from Analysis in the FEIS

Resource	Source	Mitigation Measure
Air Quality	CD-C FEIS Section 4.5.9	<ul style="list-style-type: none"> • No later than 60 months after signing of this ROD, all Operators will use Tier IV or Tier IV-equivalent drill rig engines. Each Operator will provide written certification to the BLM when they have achieved this milestone. • Within 72 months after signing of this ROD, the Operators will submit a demonstration of progress to the BLM and WDEQ-AQD through a revised emissions inventory and modeling analysis. The modeling analysis will address all criteria pollutants, air quality related values (AQRV) impacts including visibility, deposition and lake acidification, and a revised quantification of greenhouse gas (GHG) emissions. The modeling analysis will be conducted according to protocols and standards established by the BLM and WDEQ, in consultation with EPA. The new modeling conducted and funded by the Operators shall include all WDEQ BACT requirements, emission control technologies in use at the time, as well as pending federal and state regulations that are anticipated to be finalized and implemented at the time the modeling is completed. A report will be prepared that will summarize the emission reductions and air quality impacts relative to the current FEIS modeling analysis. • Operators are encouraged to implement any of the following measures as soon as feasible, within any limits or constraints that may impact other resources, to minimize air quality impacts from field development activities: <ul style="list-style-type: none"> ○ Replacing diesel-fired drill rig engines with natural gas-fired drill rig engines, ○ Reducing the number of drill rigs used annually ○ Installing selective catalytic reduction (SCR) on drill rig engines, ○ Implementing electric compression and field electrification for well pads ○ Centralization of production facilities to reduce truck traffic ○ Adopting cleaner technologies for completion activities ○ Plan and develop multi-well pads to the maximum extent possible • Operators will submit an annual report to the BLM no later than March 31 of each calendar year reporting the activity levels for the previous calendar year to include the number of wells constructed, drilled, and completed, any other additional facilities such as compressor stations or produced water evaporation ponds that were constructed, the number of active drill rigs per operator, and a summary of any emission reduction technologies that have been implemented either voluntarily or required through regulation. Emission reductions relative to the proposed action emissions shall be quantified for comparison purposes. This report will be made publicly available. The annual report will continue through the development period (i.e. active drilling/completion operations).

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Resource	Source	Mitigation Measure
Air Quality, continued	CD-C FEIS Section 4.5.9	<ul style="list-style-type: none"> • The BLM will conduct ambient air monitoring downwind of the CD-C project area. The current proposed location is within the vicinity of Saratoga, Wyoming. Air quality monitoring will be conducted through a cooperative agreement with the University of Wyoming utilizing a mobile air quality monitoring laboratory. The mobile laboratory is equipped with pollutant analyzers and a meteorology station. The following parameters will be measured and analyzed according to EPA approved methods at the proposed location: Ozone (O₃); nitric oxide (NO), nitrogen dioxide (NO₂), and oxides of nitrogen (NO_x); methane (CH₄), and non-methane hydrocarbons (NMHC); carbon monoxide (CO); and particulate matter (PM_{2.5}). The duration of monitoring activities will be determined by the BLM and subsequent monitoring locations may be identified as field development occurs. The BLM will coordinate with the WDEQ-AQD regarding monitoring locations. All monitoring data collected at the designated site will be publicly available on the BLM's WARMS website www.blmwarms.net • To ensure continued attainment of the Wyoming Ambient Air Quality Standards (WAAQS), the BLM and WDEQ will assess monitoring data within and near the project area annually in conjunction with the Operator's annual report. If WDEQ determines that ozone levels are exceeding the WAAQS and could result in a potential violation of the standard, the BLM, WDEQ and the Operators will develop an appropriate strategy to address elevated ozone levels in the project area and implement additional emission controls or operational limitations within their respective authorities. Reductions in the pace of development may be utilized to ensure ambient air quality standards are met. • Based on the current modeling analysis for hazardous air pollutant emissions, the following facilities, when constructed, will be sited outside of the following buffer zones to ensure public health and safety: <ul style="list-style-type: none"> ○ Evaporation ponds used for disposal of produced water will be sited a minimum of 1.0 mile from any residence or occupied dwelling. Evaporation ponds will be fenced and appropriate hazard signage will be placed. ○ Compressor stations will be sited a minimum of 1.0 mile from any occupied residence or dwelling. ○ Gas Plants will be sited a minimum of 1.0 mile from any occupied residence or dwelling. • The BLM Rawlins Field Office will determine on a case-by-case basis the need for additional dust suppression measures, such as chemical dust suppressants, on heavily trafficked roads and require such measures as a Condition of Approval for right-of-ways, Sundry Notices, or APDs.

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Resource	Source	Mitigation Measure
Wildlife	<p>CD-C FEIS Section 4.8.5</p> <p>CD-C FEIS Biological Opinion</p>	<ul style="list-style-type: none"> Minimizing human presence at well sites after they have been put into production by remote monitoring of project facilities Gating of roads, if necessary, and identified at the site-specific level Development planning for an entire lease or several leases Noise reduction technology Habitat improvement projects Training programs as coordinated with the Implementation Group With respect to the depletion contribution the applicant will make a one-time payment which has been calculated by multiplying the project's annual depletion in acre-feet by the depletion charge in effect at the time payment is made. The depletion charge is \$20.54 per acre-foot for the average annual depletion, which equals a total payment of \$13,351 for this project. Ten percent of the total payment (\$1,350) will be provided to the Service's designated agent, the National Fish and Wildlife Foundation at the time of issuance of Federal approvals from the BLM (i.e. issuance of this ROD). The balance will be due at the time the construction commences. The amount payable will be adjusted annually for inflation on October 1 of each year based on the Composite Consumer Price Index. The payment will be accompanied by a cover letter that identifies the project and biological opinion number (06E13000-2013-F-0044) that requires the payment, the amount of payment enclosed, check number, and the following notation on the check: "Upper Colorado Fish Recovery Program, NA.1104." The cover letter also shall identify the name and address of the payer, the name and address of the Federal agency responsible for authorizing the project, and the address of the Service office issuing the biological opinion. This information will be used by the Foundation to notify the BLM and the service that payment has been received. The BLM and project proponents must implement a monitoring and reporting program to ensure that the annual depletion does not exceed 650 acre-feet and that the cumulative depletion for the project does not exceed 9,750 acre-feet (i.e. 650 acre-feet for 15 years of development). The BLM and project proponent will identify those wells pulling water from the Wasatch Formation within that portion of the Washakie Structural Basin that loses groundwater to the southeast toward the Little Snake River, a tributary of the Colorado River. The project proponent will regularly (i.e. quarterly) provide a written report of water withdrawn from the wells identified above. The BLM will track annual and cumulative depletions and will work with the project proponent to identify alternate water sources if depletions approach the amounts identified above.

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Resource	Source	Mitigation Measure
Wild Horses	CD-C FEIS 4.10.5	<ul style="list-style-type: none"> • Education of employees regarding the Wild Free-Roaming Horse and Burro Act of 1971
Cultural	CD-C FEIS 4.14.5	<ul style="list-style-type: none"> • These measures will apply to all development activities that would affect visual, auditory, and atmospheric elements of a setting: <ul style="list-style-type: none"> ○ Construct rights-of-way during construction to minimize surface disturbance and visibility. ○ Appendix J of the CD-C FEIS will be implemented.
Socioeconomics	CD-C FEIS 4.15.6	<ul style="list-style-type: none"> • Operators will attempt to hire and train local workers from Carbon and Sweetwater Counties. • Operators will attempt to require their contractors to acquire Carbon and Sweetwater County sales and tax licenses and purchase all materials, equipment, and supplies to be used within the project area under these licenses so that proper attribution of sales and use tax payments can occur. • Operators will attempt to ensure that adequate temporary housing resources are available to accommodate their temporary drilling, field-development, and ancillary facility construction workforces. • Operators will meet annually with the BLM and representatives of the local and state governments to discuss near-term and mid-term development plans.
Range Resources	CD-C FEIS 4.18.5	<ul style="list-style-type: none"> • Heavy equipment exceeding the recommended gross vehicle weight will not be allowed to use cattle guard crossings • All gates within the project area will be left as they are found (i.e. open gates will be left open; closed gates will be closed). • The Operators will coordinate with affected livestock operators to minimize disruption during livestock operations, including lambing/calving season. • The BLM will require that off-road activity be minimized. • The BLM will require that no vehicle activity be allowed on recently reclaimed sites, wetland areas, or other sensitive sites. • Operators will sign all sites undergoing reclamation at all possible entry sites. Signs will state “Authorized Vehicles Only” to allow maintenance work on valves, for example, by responsible Operators. • Operators and Operator’s sub-contracted personnel shall not intentionally harm or harass domestic livestock.

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Table 2.3. BLM Environmental Constraints from RFO RMP

Resource	Constraint
Cultural Resources	<ul style="list-style-type: none"> • Surface-disturbing activities are prohibited within 0.25 mile of or the visual horizon (whichever is closed) of a cultural property or historic trail.
Soil Resources	<ul style="list-style-type: none"> • Surface-disturbing activities are prohibited on slopes greater than 25%.
Water Resources	<ul style="list-style-type: none"> • Surface-disturbing activities are prohibited within 100 feet of the inner gorge of ephemeral and intermittent channels. • Surface-disturbing activities are prohibited within identified 100-year floodplains. • Surface-disturbing activities are prohibited within 500 feet of perennial waters, springs, wetland, and riparian areas. • Surface-disturbing activities are prohibited in unstable areas (such as landslides, slopes >25%, slumps, and areas exhibiting soil creep). • Surface-disturbing activities are prohibited in wetlands identified on the National Wetlands Inventory or in proper functioning condition (PFC).
Wildlife	<ul style="list-style-type: none"> • The BLM will work cooperatively with other agencies and affected landowners for the introduction, transplant, reestablishment, augmentation, and/or stocking of wildlife and fish species. • Surface-disturbing and disruptive activities will be intensively managed in all raptor concentration areas (RCA) to reduce physical disturbance of raptor habitat and disturbance to the birds. This will entail a case-by-case examination of proposals. • Surface-disturbing and disruptive activities located in potential mountain plover habitat are prohibited during the reproductive period of April 10 to July 10 for the protection of breeding and nesting mountain plover. Additional protection measures will be applied if this area is later determined to be within occupied habitat. Occupied habitat is defined as areas where broods and adults have been found. • Wildlife habitat objectives will be considered in all reclamation activity. • Manage projects through facility placement and minimization of construction disturbance to maintain connectivity between large contiguous blocks of undisturbed habitat. • Manage wildlife and fisheries habitat to meet the Wyoming Standards for Healthy Rangelands. • Priority will be given to achieving the desired plant community (DPC) in addition to meeting the Wyoming Standards for Healthy Rangelands.

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Resource	Constraint
Wildlife, continued	<ul style="list-style-type: none"> • Surface-disturbing and disruptive activities potentially disruptive to nesting raptors are prohibited within the following distances during the following time periods: 1-mile buffer: Golden eagle, ferruginous hawk & Three-quarter-mile buffer: All others • Well locations, roads, ancillary facilities, and other surface structures requiring a repeated human presence will not be allowed within 825 feet of active raptor nests (ferruginous hawks, 1,200 feet). Distance may vary depending on factors such as nest activity, species, natural topographic barriers, and line-of-sight distances. • RCAs are open to oil and gas leasing (raptor nest locations are not mapped in the RMP to protect these sensitive areas). Surface-disturbing and disruptive activities will be intensively managed through the use of appropriate BMPs. • Important waterfowl production areas, as they are identified, will be managed for DPC of aquatic habitat and associated wetlands. • Surface-disturbing activities and disruptive activities will be intensively managed. BMPs will be applied to surface-disturbing and disruptive activities to maintain or enhance upland game bird species, neo-tropical and other migratory bird species, and their habitats. • Surface-disturbing and disruptive activities within big game crucial winter range will not be allowed during the period of November 15 to April 30. • Disruptive activities within big game crucial winter range will require the use of BMPs designed to reduce the amount of human presence and activity during the winter months. • Surface-disturbing and disruptive activities within identified big game parturition areas will not be allowed during the period of May 1 to June 30. • Surface-disturbing and disruptive activities will be managed, on a case-by-case basis, in identified big game migration and transitional ranges to maintain their integrity and function for big game species in these areas. • Fences identified to be a problem to big game migration will be modified to meet BLM fence standards. New fences are allowed in big game migration corridors, provided they meet BLM fence standards. • Water developments for livestock and wild horse use are allowed in crucial winter range when they are consistent with wildlife habitat needs. • Surface-disturbing and disruptive activities will be intensively managed (BMPs) to maintain or enhance reptile and amphibian species and their habitats.

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Resource	Constraint
Wildlife, continued	<ul style="list-style-type: none"> • For the protection of amphibian species and their habitats, surface-disturbing and disruptive activities will be avoided in the following areas: (1) identified 100-year floodplains, (2) areas within 500 feet of perennial waters, springs, wells, and wetlands, and (3) areas within 100 feet of the inner gorge of ephemeral channels. • Fish habitats will be managed to achieve desired future condition (DFC). • Impoundments and in-stream structures will be designed to minimize impacts on Special Status fish species and their habitats. • Road crossings of water-bodies that potentially support fish for a portion of the year will be designed to simulate natural stream processes. <p>Endangered, Threatened, Proposed, and Candidate Species</p> <ul style="list-style-type: none"> • Informal conferencing and consultation with the USFWS will occur for authorized activities that would potentially affect the habitat for endangered, threatened, proposed, and candidate species within the RMPPA. • Habitat and species conservation measures for threatened, endangered, candidate and proposed species are identified in the biological assessment and the biological opinion of the RMP. Both documents will be adhered to for compliance with the ESA and the BLM Wyoming State Director's Sensitive Species List (BLM Manual 6840). Conservation measures including all reasonable and prudent measures and terms and conditions for threatened and endangered species, as well as conservation measures for proposed and candidate species, will be applied to all surface-disturbing and disruptive activities. • If prairie dog towns/complexes suitable as black-footed ferret habitat are present, attempts will be made to avoid locating surface-disturbing activities within 164 feet (50 meters) of a town. If a black-footed ferret non-block cleared town/complex cannot be avoided, then a black-footed ferret survey is required. • Boat and raft landing areas will not be developed, and outfitting camps are prohibited in Western yellow-billed cuckoo habitat. • Surface-disturbing and disruptive activities potentially disruptive to Western yellow-billed cuckoos are prohibited within one-half mile of identified habitat from April 15 to August 15 for the protection of nesting Western yellow-billed cuckoos.

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Resource	Constraint
Wildlife, continued	<p>Species Listed on the BLM Wyoming State Director’s Sensitive Species List</p> <ul style="list-style-type: none"> • Surface-disturbing and disruptive activities that would potentially affect the habitat of Special Status Species will be intensively managed on a case-by-case basis. • Surface-disturbing and disruptive activities will be intensively managed to minimize impacts on identified crucial habitat for sensitive species for the purpose of protecting these species and their associated habitats. • Surface-disturbing and disruptive activities in white-tailed and black-tailed prairie dog towns will be avoided. • Motorized vehicle use within white-tailed prairie dog towns is limited to either designated roads and vehicle routes or existing roads and vehicle routes, depending on the landownership pattern in the area of specific white-tailed prairie dog complexes. • Prairie dog poisoning is prohibited in white-tailed and black-tailed prairie dog towns/complexes, except for demonstrated reasons of human health and safety. • Anti-raptor perching devices will be considered, on a case-by-case basis, for any above-ground facilities within one-quarter mile of prairie dog towns. • Placement of power poles within prairie dog towns will be avoided; however, in the event that power poles are required to be placed within these towns, raptor anti-perch devices will be required. • Any action that would result in stream channel instability, erosion, and sedimentation within known Western boreal toad habitat will be avoided. • Road crossings of waterbodies that potentially support fish for a portion of the year will be designed to simulate natural stream processed. • Well locations, roads, ancillary facilities, or other structures requiring a repeat human presence are prohibited within 825 feet of active raptor nests and 1200 feet for ferruginous hawk nests. • Surface-disturbing and disruptive activities are prohibited within 0.75 miles of barn owl nests from February 1–July 15. • Surface-disturbing and disruptive activities are prohibited within big game crucial winter range between November 15–April 30. Disruptive activities will require the use of BMPs designed to reduce the amount of human presence and activity during the winter months. • Surface-disturbing and disruptive activities are prohibited in big game parturition areas between May 1–June 30.

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Resource	Constraint
Wildlife, continued	<ul style="list-style-type: none"> • Surface-disturbing and disruptive activities are prohibited within 0.75 mile of burrowing owls nests from April 15–September 15. • Surface-disturbing and disruptive activities are prohibited within 0.75 mile of Cooper’s hawk nests from April 1–July 31. • Surface-disturbing and disruptive activities are prohibited within a 1 mile buffer of Ferruginous hawk nests from March 1–July 31. • Surface-disturbing and disruptive activities are prohibited within a 1 mile buffer of golden eagle nests from February 1–July 15. • Surface-disturbing and disruptive activities are prohibited within 0.75 mile of Goshawk nests from April 1–August 31. • Surface-disturbing and disruptive activities are prohibited within 0.75 mile of great-horned owl nests from February 1–July 15. • Surface-disturbing and disruptive activities are prohibited within 0.75 mile of kestrel nests between April 1–July 31. • Surface-disturbing and disruptive activities are prohibited within 0.75 mile of long-eared owl nests between March 1–July 31. • Surface-disturbing and disruptive activities are prohibited within 0.75 mile of Merlin nests between April 1–July 31. • Potential and occupied mountain plover habitat will be avoided when feasible. All surface-disturbing activities will be restricted from April 10–July 10. Additional protection measures will be applied if the area is later determined to be within occupied habitat. • Surface-disturbing and disruptive activities are prohibited within 0.75 mile of northern harrier nests between April 1–July 31. • Surface-disturbing and disruptive activities are prohibited within 0.75 mile of osprey nests between April 1–July 31. • Surface-disturbing and disruptive activities are prohibited within 0.75 mile of peregrine falcon nests between March 1–July 31. • Surface-disturbing and disruptive activities are prohibited within 0.75 mile of prairie falcon nests between April 1–July 31. • Activities and surface use will not be allowed within defined raptor and game bird winter concentration areas from November 15–April 30. • Activities and surface use will not be allowed within raptor nesting habitat from February 1–July 31.

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Resource	Constraint
Wildlife, continued	<ul style="list-style-type: none"> • Surface-disturbing and disruptive activities are prohibited within 0.75 mile of other raptor nests from February 1–July 15. • Surface-disturbing and disruptive activities are prohibited within 0.75 mile of red-tailed hawk nests from February 1–July 15. • Surface-disturbing and disruptive activities are prohibited within 0.75 mile of screech owl nests from March 1–July 31. • Surface-disturbing and disruptive activities are prohibited within 0.75 mile of sharp-shinned hawk nests from February 1–July 15. • Surface-disturbing and disruptive activities are prohibited within 0.75 mile of short-eared owl nests from March 1–July 31. • Surface-disturbing and disruptive activities are prohibited within 0.75 mile of Swainson’s hawk nests from April 1–July 31. • Boat and raft landing areas will not be developed, and outfitting camps are prohibited in Western yellow-billed cuckoo habitat. • Surface-disturbing and disruptive activities potentially disruptive to Western yellow-billed cuckoos are prohibited within one-half mile of identified habitat from April 15–August 15 for the protection of nesting Western yellow-billed cuckoo.
Chain Lakes Special Management Area	<ul style="list-style-type: none"> • The Chain Lakes area will be managed as a Wildlife Habitat Management Area (WHMA). • The Chain Lakes area is open to oil and gas leasing with intensive management of surface-disturbing and disruptive activities. • Surface-disturbing activities within the Chain Lakes unique alkaline desert wetland communities will be intensively managed.
Upper Muddy Creek/Grizzly WHMA	<ul style="list-style-type: none"> • The Upper Muddy Creek Watershed/Grizzly area will be managed as a WHMA. • The area is closed to new oil and gas leasing. Surface-disturbing activities on existing leases will be intensively managed. • Motorized vehicle use is limited to designated roads and vehicle routes. Closures of specific roads and vehicle routes, including seasonal closures, will be considered on a case-by-case basis.

GREATER SAGE-GROUSE REQUIRED DESIGN FEATURES

(From the Wyoming Approved Resource Management Plan for Greater Sage-Grouse, Appendix D)

INTRODUCTION

The following conservation measures have typically been referred to as Best Management Practices (BMPs) or recommended management practices. These conservation measures are treated in the Resource Management Plan (RMP) as required design features (RDFs) to ensure regulatory certainty and the conservation of Greater Sage-Grouse. The source of these conservation measures is Washington Office Instruction Memorandum No. 2012-044, (12/27/2011) BLM National Greater Sage-Grouse Land Use Planning Strategy (IM No. WO-2012-044).

RDFs are required for certain activities in Greater Sage-Grouse habitat. RDFs establish the minimum specifications for certain activities to help mitigate adverse impacts. However, the applicability and overall effectiveness of each RDF cannot be fully assessed until the project level when the project location and design are known. Because of site-specific circumstances, some RDFs may not apply to some projects (e.g., a resource is not present on a given site) and/or may require slight variations (e.g., a larger or smaller protective area). All variations in RDFs would require that at least one of the following be demonstrated in the National Environmental Policy Act of 1969 (NEPA) analysis associated with the project/activity:

- A specific RDF is documented to not be applicable to the site-specific conditions of the project/activity (e.g., due to site limitations or engineering considerations). Economic considerations, such as increased costs, do not necessarily require that an RDF be varied or rendered inapplicable.
- An alternative RDF, a state-implemented conservation measure, or plan-level protection is determined to provide equal or better protection for Greater Sage-Grouse or its habitat. A specific RDF provides no additional protection to Greater Sage-Grouse or its habitat.
- Through the coal planning process it will be determined if areas are suitable for further coal leasing consideration. Sage-grouse will be protected from leasing using the coal screening process (unsuitability criteria #15 or multiple use conflict analysis [screen 3]). The coal planning process (see 43 CFR 3420.1-4 and 43 CFR 3461) will identify areas where coal leasing is not suitable or acceptable and those areas will be removed from further consideration for coal leasing and development (i.e., they will not be leased, so no development and no further protection needed).

Mines (particularly large surface coal mines) do not have the flexibility to move operations, so it is assumed that if a lease is ultimately offered, sold, and issued, the federal coal lessee can use the entire coal lease for mining operations once they receive their federal permit. The following measures would be applied as RDFs for all solid minerals. The measures would also apply to locatable minerals subject to valid existing rights and consistent with applicable law.

PRIORITY HABITAT MANAGEMENT AREAS

The RDFs described here are to be applied to activities in the following BLM program areas: lands and realty, range management, fluid minerals, coal exploration, wild horses, travel management, wildfire and fuels management, noise, and West Nile virus. RDFs/BMPs are continuously improving as new science and technology become available and therefore are subject to change. Include from the following RDFs/BMPs those that are appropriate to mitigate effects from the approved action.

1. Evaluate and take advantage of opportunities to remove or modify existing power lines within priority sage- grouse habitat areas. When possible, require perch deterrents on

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existing or new overhead facilities. Encourage installation of perch deterrents on existing facilities.

2. Where existing leases or rights-of-way have had some level of development (road, fence, well, etc.) and are no longer in use, reclaim the site by removing these features and restoring the habitat.
3. Locate man camps outside priority Sage-Grouse habitats.
4. Work cooperatively with permittees, lessees, and other landowners to develop grazing management strategies that integrate both public and private lands into single management units.
5. Coordinate RDFs/BMPs and vegetative objectives with the Natural Resources Conservation Service (NRCS) for consistent application across jurisdictions where the BLM and NRCS have the greatest opportunities to benefit GRSG, particularly as it applies to the NRCS's National Sage-Grouse Initiative (http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/programs/farmbill/initiatives/andcid=st_eldevb1027671).
6. Evaluate the role of existing seedings that are currently composed of primarily introduced perennial grasses in and adjacent to priority Sage-Grouse habitats to determine if they should be restored to sagebrush or habitat of higher quality for Sage-Grouse. If these seedings are part of an Allotment Management Plan/Conservation Plan, or if they provide value in conserving or enhancing the rest of the priority habitats, then no restoration would be necessary. Assess the compatibility of these seedings for Sage-Grouse habitat or as a component of a grazing system during land health assessments (Davies et al. 2011). For example, some introduced grass seedings are an integral part of a livestock management plan and reduce grazing pressure in important sagebrush habitats, or serve as a strategic fuels management area.
7. Where the federal government owns the surface, and the mineral estate is in non-federal ownership, apply appropriate BMPs to surface development.

Roads

1. Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.
2. Locate roads to avoid important areas and habitats.
3. Coordinate road construction and use among federal fluid mineral lessees and right-of-way or special use authorization (SUA) holders.
4. Construct road crossings of ephemeral, intermittent, and perennial streams to minimize impacts to the riparian habitat, such as by crossing at right angles to ephemeral drainages and stream crossings.
5. Establish slow speed limits on BLM-administered roads or design roads for slower vehicle speeds to reduce Sage-Grouse mortality.
6. Establish trip restrictions (Lyon and Anderson 2003) or minimization through use of telemetry and remote well control (e.g., Supervisory Control and Data Acquisition). Do not issue right-of-ways or SUAs to counties on energy development roads, unless for a temporary use consistent with all other terms and conditions including this document.
7. Designate all newly constructed routes for authorized use only (using signage, gates, etc.).

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8. Apply dust abatement on roads, well pads, and other surface disturbances.
9. Close and rehabilitate duplicate roads by restoring original landform and establishing desirable habitat conditions.

Operations

1. Conduct reclamation on unused roads as soon as possible using appropriate Sage-Grouse seed mixes.
2. Reclaim the permitted right-of-ways used in the construction of the running surface immediately.
3. Site and/or minimize linear right-of-ways or SUAs to reduce disturbance and fragmentation of sagebrush habitats.
4. Place new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.
5. Bury distribution power lines to the extent technically feasible.
6. Cover all fluid-containing pits and open tanks with netting (maximum 1.5-inch mesh size) regardless of size to reduce Sage-Grouse mortality.
7. Equip tanks and other above-ground facilities with structures or devices that discourage nesting and perching of raptors and corvids.
8. Control the spread and effects of invasive non-native plant species (Evangelista et al. 2011), including treating weeds prior to surface disturbance and washing vehicles and equipment at designated wash stations when constructing in areas with weed infestations.
9. Require Sage-Grouse-safe fences (Christiansen, T. 2009; Stevens, B.S. 2011).
10. Clean up refuse (Bui et al. 2010).
11. Eliminate sumps; if the sump is absolutely necessary, then construct Sage-Grouse-safe fences around the sump. (Christiansen, T. 2009; Stevens, B.S. 2011).
12. Cluster disturbances, operations (hydraulic fracture stimulation, liquids gathering, etc.), and facilities. If the geology is exploratory and there is the potential that subsequent wells may not be drilled, do not disturb additional habitat until geology has proven additional wells can go on the pad and it is necessary to do so.
13. Use directional and horizontal drilling to the extent feasible as a means to reduce surface disturbance in relation to the number of wells.
14. Place infrastructure in already disturbed locations where the habitat has not been fully restored.
15. Apply a phased development approach with concurrent reclamation.
16. Place liquid gathering facilities outside priority areas. To reduce truck traffic and perching and nesting sites for ravens and raptors, do not place tanks at well locations within priority habitat areas.
17. Pipelines must be under or immediately adjacent to the road (Bui et al. 2010).
18. Use remote monitoring techniques for production facilities and develop a plan to reduce the frequency of vehicle use (Lyon and Anderson 2003).

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19. Restrict the construction of tall facilities, distribution power lines, and fences to the minimum number and amount needed.
20. Design or site permanent structures to minimize impacts to Sage-Grouse, with emphasis on locating and operating facilities that create movement (e.g., pump jacks) or attract frequent human use and vehicular traffic (e.g., fluid storage tanks) in a manner that will minimize disturbance of Sage-Grouse or interference with habitat use.
21. Use only closed-loop systems for drilling operations, with no reserve pits.
22. Consider using oak (or other material) mats for drilling activities where topography permits to reduce vegetation disturbance and for temporary roads between closely spaced wells to reduce soil compaction and maintain soil structure to increase likelihood of vegetation reestablishment following drilling.

West Nile Virus

1. Artificial water impoundments will be managed for the prevention and/or spread of West Nile virus where the virus poses a threat to Sage-Grouse. This may include but is not limited to: (a) the use of larvicides and adulticides to treat waterbodies; (b) overbuilding ponds to create non-vegetated, muddy shorelines; (c) building steep shorelines to reduce shallow water and emergent aquatic vegetation; (d) maintaining the water level below rooted vegetation; (e) avoiding flooding terrestrial vegetation in flat terrain or low-lying areas; (f) constructing dams or impoundments that restrict seepage or overflow; (g) lining the channel where discharge water flows into the pond with crushed rock, or use a horizontal pipe to discharge inflow directly into existing open water; (h) lining the overflow spillway with crushed rock and construct the spillway with steep sides to preclude the accumulation of shallow water and vegetation; and (i) restricting access of ponds to livestock and wildlife (Doherty 2007). This does not apply to naturally occurring waters.
2. Field offices should consider alternative means to manage produced waters that could present additional vectors for West Nile virus. Such remedies may include re-injection under an approved Underground Injection Control permit, transfer to single/centralized facility, etc.
3. Water impoundments will be managed to prevent the spread of West Nile virus where analysis shows the virus poses a threat to Sage-Grouse and in consideration of potential negative impact to other species of concern.
4. Restrict pit and impoundment construction to reduce or eliminate threats from West Nile virus (Doherty 2007).

Noise

1. Limit noise to less than 10 decibels above ambient measures (20–24 dBA) at sunrise at the perimeter of a lek during active lek season (Patricelli et al. 2010, Blickley et al. 2012).
2. Require noise shields when drilling during the lek, nesting, brood-rearing, or wintering season.
3. Locate new compressor stations outside priority habitats and design them to reduce noise that may be directed towards priority habitat.

Reclamation

1. Include objectives for ensuring habitat restoration to meet Sage-Grouse habitat needs in reclamation practices/sites (Pyke 2011). Address post-reclamation management in

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reclamation plan such that goals and objectives are to protect and improve Sage-Grouse habitat needs.

2. Maximize the area of interim reclamation on long-term access roads and well pads, including reshaping, topsoiling, and revegetating cut-and-fill slopes where practicable; material used for irrigation must be removed thereafter.
3. Restore disturbed areas at final reclamation to the pre-disturbance landforms and desired plant community. Implement irrigation during interim or final reclamation for sites where establishment of seedlings has been shown or is expected to be difficult due to dry conditions.
4. Use mulching, soil amendments, and/or erosion blankets to expedite reclamation and to protect soils.
5. Identify and work with partners to increase native seed availability and work with plant material centers to develop new plant materials, especially the forbs needed to restore Sage-Grouse habitat.
6. Consider potential changes in climate (Miller et al. 2011) when proposing seedlings using native plants. Consider seed collections from the warmer component within a species' current range for selection of native seed (Kramer and Havens 2009).
7. Use Ecological Site Descriptions (ESD) or other protocols (e.g., Terrestrial Ecological Unit Inventory or Lands System Inventory) to identify the understory species and sagebrush subspecies needed to restore desirable habitat conditions.

Vegetation Treatments/Fire and Fuels Management

1. During vegetation management project design, consider the utility of using livestock to strategically reduce fine fuels (Diamond et al. 2009), and implement grazing management that will accomplish this objective (Davies et al. 2011, Launchbaugh et al. 2007). Consult with ecologists to minimize impacts to native perennial grasses.
2. Provide planning vegetation treatments information to personnel on Sage-Grouse biology, habitat requirements, and identification of areas utilized locally.
3. Use vegetation treatment prescriptions that minimize undesirable effects on vegetation or soils (e.g., minimize mortality of desirable plant species and reduce risk of hydrophobicity).
4. Ensure that treatments are configured in a manner (e.g., strips) that promotes use by Sage-Grouse (See Connelly et al. 2000).
5. Design vegetation treatments in areas of high fire frequency which facilitate firefighter safety, reduce the potential acres burned and the fire risk to Sage-Grouse habitat. Additionally, develop maps for Sage-Grouse habitat which spatially display existing fuels treatments that can be used to assist suppression activities.
6. Restore prior perennial grass/shrub plant communities infested with invasive species to a species composition characterized by perennial grasses, forbs, and shrubs as outlined in ESDs.
7. Emphasize the use of native plant species, recognizing that non-native species may be necessary depending on the availability of native seed and prevailing site conditions.
8. Reduce the risk of vehicle or human-caused wildfires and the spread of invasive species into Sage-Grouse habitats. This could be minimized by planting perennial vegetation (e.g.,

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green-strips) paralleling road right-of-ways. (This RDF could be applied to BLM linear right-of-way authorizations.)

9. Strategically place and maintain pre-treated strips/areas (e.g., mowing, herbicide application, and strictly managed grazed strips) to aid in controlling wildfire, should wildfire occur near key habitats or important restoration areas (such as where investments in restoration have already been made).
10. As appropriate, utilize existing fuel breaks, such as roads or discrete changes in fuel type, as control lines to minimize fire spread.
11. Design vegetation treatments in Sage-Grouse habitats to strategically reduce wildfire threats in the greatest area. This may involve spatially arranging new vegetation treatments with past treatments, vegetation with fire-resistant serial stages, natural barriers, and roads in order to constrain fire spread and growth. This may require vegetation treatments to be implemented in a more linear versus block design (Launchbaugh et al. 2007).
12. Design post-Emergency Stabilization and Rehabilitation (ES&R) and Burn Area Emergency Rehabilitation (BAER) management to ensure long-term persistence of seeded or pre-burn native plants. This may require temporary or long-term changes in livestock grazing, wild horses, travel management, etc., to achieve and maintain the desired condition of ES&R and BAER projects to benefit Sage-Grouse (Eiswerth and Shonkwiler 2006). Include Sage-Grouse habitat parameters as defined by Connelly et al. (2000), Hagen et al. (2007) or if available, state Sage-Grouse conservation plans and appropriate local information in habitat restoration objectives. Maintain these objectives, within priority Sage-Grouse habitat areas, as a high restoration priority.
13. Make reestablishment of sagebrush and desirable understory plant cover (relative to ecological site potential) a high priority for restoration efforts. Write specific vegetation objectives to reestablish sagebrush cover and desirable understory cover.
14. Where applicable, design fuels treatment objective to protect existing sagebrush ecosystems, modify fire behavior, restore native plants, and create landscape patterns which most benefit Sage-Grouse habitat.
15. Provide training to fuels treatment personnel on Sage-Grouse biology, habitat requirements, and identification of areas utilized locally.
16. Use burning prescriptions which minimize undesirable effects on vegetation or soils (e.g., minimize mortality of desirable perennial plant species and reduce risk of annual grass invasion).
17. Ensure proposed sagebrush treatments are planned with full interdisciplinary input from the BLM (pursuant to NEPA) and coordination with state fish and wildlife agencies, and that treatment acreage is conservative in the context of surrounding Sage-Grouse seasonal habitats and landscape.
18. Power-wash all vehicles and equipment involved in vegetation treatment and fuels management activities prior to entering the area to minimize the introduction of undesirable and/or invasive plant species.
19. Give priority for implementing specific Sage-Grouse habitat restoration projects in annual grasslands, first to sites which are adjacent to or surrounded by priority/core habitat or that reestablish continuity between priority habitats. Annual grasslands are a second priority for restoration when the sites are not adjacent to priority/core habitat but within two miles of

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priority/core habitat. The third priority for annual grassland habitat restoration projects is sites beyond two miles of priority/core habitat. The intent is to focus restoration outward from existing, intact habitat.

20. As funding and logistics permit, restore annual grasslands to a species composition characterized by perennial grasses, forbs, and shrubs or one of those referenced in land use planning documentation.
21. Emphasize the use of native plant species, recognizing that non-native species may be necessary depending on the availability of native seed and prevailing site conditions.
22. Remove standing and encroaching trees within at least 110 yards of occupied Sage-Grouse leks and other habitats (e.g., nesting, wintering, and brood rearing) to reduce the availability of perch sites for avian predators, as resources permit.
23. Design fuel treatments that would increase fire suppression efficiencies to protect wildland areas from wildfire originating on private lands, infrastructure corridors, and recreational areas. Where applicable, incorporate roads and natural fuel breaks into fuel break design.
24. Develop state-specific Sage-Grouse reference information and resource materials containing maps, a list of resource advisors, contact information, local guidance, and other information relevant to agency administrators and fire suppression resources.
25. During periods of multiple fires, ensure line officers are involved in setting priorities.
26. Provide localized maps to dispatch offices and extended attack incident commanders for use in prioritizing wildfire suppression resources and designing suppression tactics.
27. Assign a resource advisor with Sage-Grouse expertise or who has access to Sage-Grouse expertise to all extended attack fires in or near Sage-Grouse habitat. Prior to the fire season, provide training to Sage-Grouse resource advisors on wildfire suppression organization, objectives, tactics, and procedures to develop a cadre of qualified individuals. Involve state wildlife agency expertise in fire operations through the following:
 - a. Instructing resource advisors during preseason trainings
 - b. Qualification as resource advisors
 - c. Coordination with resource advisors during fire incidents
 - d. Contributing to incident planning with information such as habitat features or other key data useful in fire decision-making.
28. On critical fire weather days, pre-position additional fire suppression resources to optimize a quick and efficient response in Sage-Grouse habitat areas.
29. Locate wildfire suppression facilities (i.e., base camps, spike camps, drop points, staging areas and heli-bases) in areas where physical disturbance to Sage-Grouse habitat can be minimized. These include disturbed areas, grasslands, near roads/trails, or other areas where there is existing disturbance or minimal sagebrush cover.
30. Minimize unnecessary cross-country vehicle travel during fire operations in Sage-Grouse habitat.
31. Minimize burnout operations in key Sage-Grouse habitat areas by constructing a direct fire line whenever safe and practical to do so.

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32. Utilize retardant, mechanized equipment, and other available resources to minimize burned acreage during initial attack.
33. As safety allows, conduct mop-up where the black adjoins unburned islands, dog legs, or other habitat features to minimize sagebrush loss.
34. Adequately document the fire operation activities in Sage-Grouse habitat for potential follow-up coordination activities.
35. Compile the District-level information into state-wide Sage-Grouse tool boxes. Tool boxes will contain maps, listing of resource advisors, contact information, local guidance, and other relevant information for each District, which will be aggregated into a state-wide document.

GENERAL HABITAT MANAGEMENT AREAS

Best Management Practices

Make applicable BMPs mandatory as Conditions of Approval within general Sage-Grouse habitat. BMPs are continuously improving as new science and technology become available and therefore are subject to change. At a minimum include the following BMPs:

Roads

1. Design roads to an appropriate standard, no higher than necessary, to accommodate their intended purpose.
2. Do not issue right-of-ways to counties on energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.
3. Establish speed limits to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.
4. Coordinate road construction and use among right-of-way holders.
5. Construct road crossing at right angles to ephemeral drainages and stream crossings.
6. Use dust abatement practices on roads and pads.
7. Close and reclaim duplicate roads by restoring original landform and establishing desired vegetation.

Operations

1. Cluster disturbances, operations (fracture stimulation, liquids gathering, etc.), and facilities.
2. Use directional and horizontal drilling to reduce surface disturbance.
3. Clean up refuse (Bui et al. 2010).
4. Restrict the construction of tall facilities and fences to the minimum number needed.
5. Cover (e.g., fine mesh netting or use other effective techniques) all drilling and production pits and tanks regardless of size to reduce Sage-Grouse mortality.
6. Equip tanks and other above ground facilities with structures or devices that discourage nesting of raptors and corvids.
7. Use remote monitoring techniques for production facilities and develop a plan to reduce the frequency of vehicle use.

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8. Control the spread and effects from non-native plant species. (e.g., by washing vehicles and equipment).
9. Restrict pit and impoundment construction to reduce or eliminate augmenting threats from West Nile virus (Dougherty 2007).

Reclamation

Include restoration objectives to meet Sage-Grouse habitat needs in reclamation practices/sites (Pyke 2011). Address post-reclamation management in reclamation plan such that goals and objectives are to enhance or restore Sage-Grouse habitat.